



Short-term effects of the 2008 cold spell on mortality in three subtropical cities in Guangdong province, China

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Abstract:

Background: Few studies have been conducted to investigate the impact of extreme cold events on mortality in subtropical regions. **Objective:** In the present study we aimed to investigate the effects of the 2008 cold spell on mortality and the possibility of mortality displacement in three subtropical cities in China. **Methods:** Daily mortality, air pollution, and weather data were collected from 2006 to 2009 in Guangzhou, Nanxiong (no air pollutants), and Taishan. We used a polynomial distributed lag model (DLM) to analyze the relationship between the 2008 cold spell and mortality. To observe the mortality displacement of the cold spell, we estimated the cumulative effects at lag0, lag0-6, lag0-13, lag0-20, and lag0-27 separately. **Results:** During the 2008 cold spell, the cumulative risk of non accidental mortality increased significantly in Guangzhou [relative risk (RR) Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.60; 95% CI: 1.19, 2.14] and Taishan (RR Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.60; 95% CI: 1.06, 2.40) when lagged up to 4 weeks after the cold spell ended. Estimated effects at lag0-27 were more pronounced for males than for females, for respiratory mortality than for cardiovascular mortality, and for the elderly (≥ 75 years of age) than for those 0-64 years of age. Most of the cumulative RRs increased with longer lag times in Guangzhou and Taishan. However, in Nanxiong, the trend with cumulative RRs was less consistent, and we observed no statistically significant associations at lag0-27. **Conclusion:** We found associations between the 2008 cold spell and increased mortality in the three subtropical cities of China. The lag effect structure of the cold spell varied with location and the type of mortality, and evidence of short-term mortality displacement was inconsistent. These findings suggest that extreme cold is an important public health problem in subtropical regions.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3569675>

Resource Description

Exposure : ☐

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Particulate Matter, Other Air Pollution

Air Pollution (other): NO₂; SO₂

Climate Change and Human Health Literature Portal

Temperature: Extreme Cold

Geographic Feature: ☒

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : Subtropical

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality, Respiratory Effect

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Elderly

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified